

What Is Claimed Is:

1        1. A method of providing different quality of services (QOS) in a communication  
2        network to data related to different point-to-point sessions, said method comprising:  
3                provisioning in a first aggregation device a plurality of virtual circuits, said plurality  
4        of virtual circuits being provisioned between said first aggregation device and a second  
5        aggregation device located in said communication network, each of said plurality of virtual  
6        circuits being provisioned to provide a different QOS;  
7                receiving in said first aggregation device a plurality of datagrams, each of said  
8        plurality of datagrams being related to a corresponding one of a plurality of point-to-point  
9        sessions;  
10                determining a point-to-point session to which each of said plurality of datagrams  
11        relates to;  
12                assigning each of said plurality of datagrams to one of said plurality of virtual circuits  
13        depending on the QOS desired for the corresponding point-to-point session; and  
14                sending the data in each of said datagrams to said second aggregation device in the  
15        form of a packet on a corresponding assigned virtual circuit,  
16                whereby different point-to-point sessions receive different QOS.

1        2. The method of claim 1, wherein said packet comprises an asynchronous transfer  
2        mode (ATM) cell.

1        3. The method of claim 2, wherein said plurality of virtual circuits supports a tunnel  
2        between said first aggregation device and said second aggregation device.

1           4. The method of claim 3, wherein said plurality of virtual circuits are comprised in  
2        a virtual circuit (VC) bundle supporting said tunnel, said method further comprising mapping  
3        said point-to-point session to said tunnel by examining a table, wherein said table further  
4        specifies a precedence value associated with said point-to-point session, wherein said  
5        assigning comprises determining said one of said plurality of virtual circuits based on said  
6        precedence value, whereby different point-to-point sessions supported on said tunnel receive  
7        different QOS.

1           5. The method of claim 1, further comprising indicating in a table the specific one of  
2        said plurality of virtual circuits to which each of said plurality of point-to-point sessions is  
3        to be assigned, wherein said assigning comprises examining said table.

1           6. The method of claim 1, wherein each of said plurality of datagrams is received  
2        according to a layer-3 protocol.

1           7. The method of claim 1, further comprising receiving said packet in said second  
2        aggregation device and forwarding the data in said packet to an system related to the  
3        corresponding point-to-point session.

1           8. A first aggregation device for providing different quality of services (QOS) in a  
2        communication network to data related to different point-to-point sessions, said aggregation  
3        device comprising:

4           means for provisioning a plurality of virtual circuits, said plurality of virtual circuits  
5        being provisioned between said first aggregation device and a second aggregation device

6 located in said communication network, each of said plurality of virtual circuits being  
7 provisioned to provide a different QOS;

8 means for receiving in said first aggregation device a plurality of datagrams, each of  
9 said plurality of datagrams being related to a corresponding one of a plurality of point-to-  
10 point sessions;

11 means for determining a point-to-point session to which each of said plurality of  
12 datagrams relate to;

13 means for assigning each of said plurality of datagrams to one of said plurality of  
14 virtual circuits depending on the QOS desired for the corresponding point-to-point session;  
15 and

16 means for sending the data in each of said datagrams to said second aggregation  
17 device in the form of a packet on a corresponding assigned virtual circuit,  
18 whereby different point-to-point sessions receive different QOS.

1 9. The aggregation device of claim 8, wherein said packet comprises an asynchronous  
2 transfer mode (ATM) cell.

1 10. The aggregation device of claim 9, wherein said plurality of virtual circuits  
2 supports a tunnel between said first aggregation device and said second aggregation device,  
3 wherein said plurality of virtual circuits are comprised in a virtual circuit (VC) bundle,  
4 wherein said means for assigning first maps said point-to-point session to said tunnel and  
5 then assigns the corresponding datagrams to one of said plurality of virtual circuits depending  
6 on a QOS desired for the point-to-point session, wherein said QOS desired for the point-to-  
7 point session is specified by a precedence value in a table.

1           11. The aggregation device of claim 8, further comprising means for indicating the  
2        specific one of said plurality of virtual circuits to which each of said plurality of point-to-  
3        point sessions is to be assigned, wherein said assigning comprises interfacing with said means  
4        for indicating.

1           12. A first aggregation device for providing different quality of services (QOS) in a  
2        communication network to data related to different point-to-point sessions, said aggregation  
3        device comprising:

4           an inbound interface receiving a plurality of datagrams, each of said plurality of  
5        datagrams being related to a corresponding one of a plurality of point-to-point sessions;  
6           a memory indicating one of a plurality of virtual circuits to transfer data related to  
7        each of said plurality of point-to-point sessions, each of said plurality of virtual circuits being  
8        provisioned to provide a different QOS between said first aggregation device and a second  
9        aggregation device on said communication network;

10          a classifier examining each of said plurality of datagrams to determine the specific  
11        point-to-point session to which each datagram relates to;

12          an encapsulator generating a packet corresponding to each of said plurality of  
13        datagrams, a header of each packet containing a virtual circuit identifier identifying one of  
14        said plurality of virtual circuits, wherein said one of said plurality of virtual circuits is  
15        determined based on a QOS desired for a corresponding point-to-point session; and

16          an outbound interface sending said packet corresponding to each of said plurality of  
17        datagrams on a virtual circuit specified by the corresponding header,

18          whereby the data related to different point-to-point sessions receives different QOS.

1       13. The first aggregation device of claim 12, wherein said memory is configured to  
2       indicate the specific one of said plurality of virtual circuits to which each of said point-to-  
3       point sessions is to be assigned.

1       14. The first aggregation device of claim 12, wherein said memory is configured to  
2       indicate a precedence value representing said QOS desired for each of said point-to-point  
3       sessions, and said encapsulator determines said virtual circuit identifier for each of said  
4       packets by examining said precedence value.

1       15. The first aggregation device of claim 12, wherein said packet comprises an  
2       asynchronous transfer mode (ATM) cell.

1       16. The first aggregation device of claim 13, wherein said plurality of virtual circuits  
2       supports a tunnel between said first aggregation device and said second aggregation device,  
3       wherein said classifier maps said point to point session to said tunnel first and then said point-  
4       to-point session is mapped to said one of said plurality of virtual circuits.

1       17. The first aggregation device of claim 16, wherein said plurality of virtual circuits  
2       are comprised in a virtual circuit (VC) bundle.

1       18. The first aggregation device of claim 12, further comprising a table indicating the  
2       specific one of said plurality of virtual circuits to which each of said plurality of point-to-  
3       point sessions is to be assigned, wherein said assigning comprises examining said table.

1           19. The first aggregation device of claim 12, wherein each of said plurality of  
2 datagrams is received according to a layer-3 protocol.

1           20. A computer readable medium carrying one or more sequences of instructions for  
2 causing a first aggregation device to provide different quality of services (QOS) in a  
3 communication network to data related to different point-to-point sessions, wherein execution  
4 of said one or more sequences of instructions by one or more processors contained in said  
5 first aggregation device causes said one or more processors to perform the actions of:

6           provisioning in a first aggregation device a plurality of virtual circuits, said plurality  
7 of virtual circuits being provisioned between said first aggregation device and a second  
8 aggregation device located in said communication network, each of said plurality of virtual  
9 circuits being provisioned to provide a different QOS;

10           receiving in said first aggregation device a plurality of datagrams, each of said  
11 plurality of datagrams being related to a corresponding one of a plurality of point-to-point  
12 sessions;

13           determining a point-to-point session to which each of said plurality of datagrams  
14 relates to;

15           assigning each of said plurality of datagrams to one of said plurality of virtual circuits  
16 depending on the QOS desired for the corresponding point-to-point session; and

17           sending the data in each of said datagrams to said second aggregation device in the  
18 form of a packet on a corresponding assigned virtual circuit,

19           whereby different point-to-point sessions receive different QOS.

1           21. The computer readable medium of claim 20, wherein said packet comprises an  
2           asynchronous transfer mode (ATM) cell.

1           22. The computer readable medium of claim 21, wherein said plurality of virtual  
2           circuits support a tunnel between said first aggregation device and said second aggregation  
3           device, and wherein said plurality of virtual circuits are comprised in a virtual circuit (VC)  
4           bundle, said one or more sequences of instructions causing said one or more processors to  
5           perform the further action of maintaining a table indicating a mapping of each point-to-point  
6           session to said tunnel, wherein said table further indicates a precedence value associated with  
7           point-to-point session, wherein said assigning comprises determining said one of said  
8           plurality of circuits based on said precedence value.

1           23. The computer readable medium of claim 20, further comprising indicating in a  
2           table the specific one of said plurality of virtual circuits to which each of said plurality of  
3           point-to-point sessions is to be assigned, wherein said assigning comprises examining said  
4           table.

1           24. The computer readable medium of claim 20, wherein each of said plurality of  
2           datagrams is received according to a layer-3 protocol.

1           25. The computer readable medium of claim 20, further comprising:  
2           indicating the services to be provided to a user;  
3           determining said user according to an authentication protocol when a corresponding  
4           point-to-point session is established; and

5 indicating the services desired for said user using a session identifier assigned to said  
6 corresponding point-to-point session.